

RIO-ARGENTIN - A-025 - #C131107



1547705 - R8 SDMS



ESAT Region 8 Chain of Custody Form
U.S. Environmental Protection Agency
Region 8 Superfund Program

Site Name: Rico - Argentine - Waters - Nov 2013 TDF: A-025

Site Manager: Steve Way Work Order: C131107

Relinquished By:

Holly J. Sprunger 12/16/2013 [Signature]
Print Name Date Signature

Received By:

Don Goodrich 12/20/13 [Signature]
Print Name Date Signature

Relinquished By:

Don Goodrich 1/7/2014 [Signature]
Print Name Date Signature

Received By:

Print Name Date Signature

Relinquished By:

Print Name Date Signature

Received By:

Print Name Date Signature



TechLaw, Inc.
Environmental Services Assistance Team
16194 W. 45th Drive, Golden, CO 80403

Task Order: 0002 - Analytical Support and Data Validation
DCN#: EP8 - 1 - 1053
Contract: EP-W-13-028
TDF#: A025
Line Item: All
TDF Status: In Progress
Date: 12/12/2013
To: Don Goodrich, USEPA, Region 8 Task Order Project Officer
From: Holly Sprunger, ESAT Environmental Scientist
Through: Mark McDaniel, Region 8 ESAT Team Manager
Subject: Rico-Argentine_Waters_NOV 2013

Comments:

11/15/2013 Received 12 water samples for the following analyses:

Total Recoverable Metals by ICP-OE
Total Recoverable Metals by ICP-MS
Dissolved Metals / Hardness by ICP-OE
Dissolved Metals ICP-MS
WC – Anions by Ion Chromatography 2010

Thank You



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 12/11/13

Subject: Analytical Results--- **Rico-Argentine_Waters_NOV 2013_A-025 / A-025**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Steve Way
Superfund
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:
[C131107 : 11/15/2013]

Attached are the analytical results for the samples received from the Rico-Argentine_Waters_NOV 2013_A-025 sampling event, according to TDF A-025. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Laboratory policy is to dispose of any remaining sample 60 days after data analysis packages are delivered to EPA. If you would like the laboratory to retain the samples for a period longer than 60 days, please contact Don Goodrich within the 60 day period at (303) 312-6687.

TDF #: A-025

Case Narrative

C131107

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

1. Initial and Continuing calibration blanks (ICBs and CCBs).
Exceptions: In ICP-MS sequences 1312041 and 1312042, molybdenum was detected in the ICB and CCB1. The reporting limit for molybdenum was raised to 1.0 ug/L. No qualifiers were assigned.
2. Preparation (PB) / Method blanks (MB)
Exceptions: In ICP-MS batch 1312040, molybdenum and copper were detected in the prep blank. As a result, the reporting limits for molybdenum and copper were raised to 1.0 ug/L and 2.0 ug/L, respectively. No qualifiers were assigned.
3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.
Exceptions: None.
4. Initial and Continuing calibration verification analyses (ICVs, SCVs and CCVs).
Exceptions: In ICP-MS sequences 1312041 and 1312042, thorium recovered high in CCV2. There were no thorium detections.
5. Laboratory Control Sample (LCS) or second source analysis or SRM.
Exceptions: None.
6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.
PBS performed with analyses/methods requiring preparation or digestion prior to analysis.
Exceptions: None.
7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.
Exceptions: In ICP-MS sequences 1312041 and 1312042, selenium recovered high in the CRL. There were no selenium detections.
8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.
Exceptions: None.
9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.
Exceptions: None.
10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory. Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).
Exceptions: None.
11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.
Exceptions: None.
12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.
Exceptions: None.

TDF#: A-025

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.
U	Analyte not detected at or above MDL qualifier
D	Diluted value qualifier.

Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP -OE (ICP).
- Method 200.8 / 6020 using a Perkin -Elmer Elan 6000 ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin -Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg (milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW -846*,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: CHV-101U
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 09:46
Matrix: Ground WaterWorkorder: C131107
Lab Number: C131107-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	325	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	252000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	20300		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	809		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	6700	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	14400		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	< 200	U	ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	50.1	J	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	1.17	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	1.41	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	12.8		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	2.71		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	713		mg/L	15	10	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-1	Date / Time Sampled: 11/13/13 15:47	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Surface Water	Lab Number: C131107-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	45.4	J	ug/L	20.0	1	12/10/2013	SV	1312039
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Calcium	33100		ug/L	50.0	1	12/10/2013	SV	1312039
200.7	Iron	< 250	U	ug/L	100	1	12/10/2013	SV	1312039
200.7	Magnesium	5540		ug/L	100	1	12/10/2013	SV	1312039
200.7	Manganese	11.6		ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Potassium	630	J	ug/L	250	1	12/10/2013	SV	1312039
200.7	Sodium	2500		ug/L	250	1	12/10/2013	SV	1312039
200.7	Zinc	< 20.0	U	ug/L	10.0	1	12/10/2013	SV	1312039
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Barium	56.3		ug/L	5.00	1	12/10/2013	SV	1312040
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Chromium	5.40		ug/L	1.00	1	12/10/2013	SV	1312040
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Copper	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Molybdenum	0.813	J	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Selenium	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thallium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thorium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Uranium	0.249		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Vanadium	2.00	J	ug/L	2.00	1	12/10/2013	SV	1312040
2340B	Hardness	105		mg/L	2	1	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-2
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 14:35
Matrix: Surface WaterWorkorder: C131107
Lab Number: C131107-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	36.8	J	ug/L	20.0	1	12/10/2013	SV	1312039
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Calcium	38100		ug/L	50.0	1	12/10/2013	SV	1312039
200.7	Iron	< 250	U	ug/L	100	1	12/10/2013	SV	1312039
200.7	Magnesium	5890		ug/L	100	1	12/10/2013	SV	1312039
200.7	Manganese	57.4		ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Potassium	666	J	ug/L	250	1	12/10/2013	SV	1312039
200.7	Sodium	2690		ug/L	250	1	12/10/2013	SV	1312039
200.7	Zinc	< 20.0	U	ug/L	10.0	1	12/10/2013	SV	1312039
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Barium	58.6		ug/L	5.00	1	12/10/2013	SV	1312040
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Chromium	4.75		ug/L	1.00	1	12/10/2013	SV	1312040
200.8	Cobalt	0.113	J	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Copper	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Molybdenum	1.36		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Selenium	0.543	J	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thallium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thorium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Uranium	0.331		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/10/2013	SV	1312040
2340B	Hardness	119		mg/L	2	1	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-3
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 10:16
Matrix: Surface WaterWorkorder: C131107
Lab Number: C131107-09 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 500	U	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	235000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	20600		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	2030		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	2590	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	11900		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	4920		ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	26.1		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	2.83		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	11.2	J	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	13.5		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	3.51		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	671		mg/L	15	10	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-4
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 11:10
Matrix: Surface WaterWorkorder: C131107
Lab Number: C131107-12 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 500	U	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	233000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	20500		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	1990		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	2760	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	11900		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	4520		ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	23.2		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	2.72		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	5.59	J	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	12.5		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	3.55		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	665		mg/L	15	10	12/10/2013	SV	1312039

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-5	Date / Time Sampled: 11/13/13 15:10	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Surface Water	Lab Number: C131107-14 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	232	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	241000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	21800		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	1820		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	3120	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	12300		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	4000		ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	12.0		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	2.36		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	11.8		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	3.55		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	691		mg/L	15	10	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-6
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 14:08
Matrix: Surface WaterWorkorder: C131107
Lab Number: C131107-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	295	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	259000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	25400		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	1660		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	3720	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	15200		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	3610		ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	17.3		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	12.3	J	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	1.89	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	10.4		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	3.43		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	752		mg/L	15	10	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: DR-7	Date / Time Sampled: 11/13/13 12:56	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Surface Water	Lab Number: C131107-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	36.9	J	ug/L	20.0	1	12/10/2013	SV	1312039
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Calcium	62500		ug/L	50.0	1	12/10/2013	SV	1312039
200.7	Iron	< 250	U	ug/L	100	1	12/10/2013	SV	1312039
200.7	Magnesium	9280		ug/L	100	1	12/10/2013	SV	1312039
200.7	Manganese	188		ug/L	2.00	1	12/10/2013	SV	1312039
200.7	Potassium	1450		ug/L	250	1	12/10/2013	SV	1312039
200.7	Sodium	4930		ug/L	250	1	12/10/2013	SV	1312039
200.7	Zinc	172		ug/L	10.0	1	12/10/2013	SV	1312039
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Arsenic	0.846	J	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Barium	62.3		ug/L	5.00	1	12/10/2013	SV	1312040
200.8	Cadmium	0.833		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Chromium	7.83		ug/L	1.00	1	12/10/2013	SV	1312040
200.8	Cobalt	0.260		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Copper	0.860	J	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Lead	1.36		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Molybdenum	1.26		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Selenium	< 2.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thallium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Thorium	< 1.00	U	ug/L	0.500	1	12/10/2013	SV	1312040
200.8	Uranium	0.548		ug/L	0.100	1	12/10/2013	SV	1312040
200.8	Vanadium	2.75	J	ug/L	2.00	1	12/10/2013	SV	1312040
2340B	Hardness	194		mg/L	2	1	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: MW-109S
EPA Tag No.: 8-ADate / Time Sampled: 11/13/13 13:41
Matrix: Ground WaterWorkorder: C131107
Lab Number: C131107-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	382	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	515000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	3100		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	91900		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	646		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	24400		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	65700		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	141	J	ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	34.4		ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	100		ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	2.12		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	1.40	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	5.83	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	1.34	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	32.5		ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	1660		mg/L	15	10	12/10/2013	SV	1312039

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: MW-110	Date / Time Sampled: 11/13/13 13:00	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Ground Water	Lab Number: C131107-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	224	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	223000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	1690	J	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	46000		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	4980		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	15400		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	32200		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	< 200	U	ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	7.35	J	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	58.6	J	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	30.4		ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	4.99		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	9.10	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	746		mg/L	15	10	12/10/2013	SV	1312039

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: MW-2D	Date / Time Sampled: 11/13/13 10:58	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Ground Water	Lab Number: C131107-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 500	U	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	254000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	< 2500	U	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	23500		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	< 10000	U	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	14500		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	< 200	U	ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	11.1	J	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	5.71	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	4.44		ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	731		mg/L	15	10	12/10/2013	SV	1312039

TDF #: A-025

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: MW-3D	Date / Time Sampled: 11/13/13 11:46	Workorder: C131107
EPA Tag No.: 8-A	Matrix: Ground Water	Lab Number: C131107-30 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	234	J	ug/L	200	10	12/10/2013	SV	1312039
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Calcium	241000		ug/L	500	10	12/10/2013	SV	1312039
200.7	Iron	1270	J	ug/L	1000	10	12/10/2013	SV	1312039
200.7	Magnesium	22400		ug/L	1000	10	12/10/2013	SV	1312039
200.7	Manganese	1250		ug/L	20.0	10	12/10/2013	SV	1312039
200.7	Potassium	5850	J	ug/L	2500	10	12/10/2013	SV	1312039
200.7	Sodium	13600		ug/L	2500	10	12/10/2013	SV	1312039
200.7	Zinc	< 200	U	ug/L	100	10	12/10/2013	SV	1312039
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312040
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Chromium	10.1	J	ug/L	10.0	10	12/10/2013	SV	1312040
200.8	Cobalt	1.13	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Copper	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Lead	1.12	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Molybdenum	7.86	J	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312040
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/10/2013	SV	1312040
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312040
2340B	Hardness	694		mg/L	15	10	12/10/2013	SV	1312039

"J" Qualifier indicates an estimated value

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CHV-101U	Date / Time Sampled: 11/13/13 09:46	Workorder: C131107
EPA Tag No.: 8-B	Matrix: Ground Water	Lab Number: C131107-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	22100		ug/L	200	10	12/10/2013	SV	1312035
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312035
200.7	Calcium	274000		ug/L	500	10	12/10/2013	SV	1312035
200.7	Iron	32700		ug/L	1000	10	12/10/2013	SV	1312035
200.7	Magnesium	35500		ug/L	1000	10	12/10/2013	SV	1312035
200.7	Manganese	3350		ug/L	20.0	10	12/10/2013	SV	1312035
200.7	Potassium	10800		ug/L	2500	10	12/10/2013	SV	1312035
200.7	Sodium	14800		ug/L	2500	10	12/10/2013	SV	1312035
200.7	Zinc	352		ug/L	100	10	12/10/2013	SV	1312035
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Arsenic	11.2	J	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Barium	325		ug/L	50.0	10	12/10/2013	SV	1312035
200.8	Cadmium	2.35		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Chromium	28.0		ug/L	10.0	10	12/10/2013	SV	1312035
200.8	Cobalt	14.6		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Copper	47.8		ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Lead	186		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Molybdenum	9.32	J	ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Nickel	17.8		ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Thorium	11.0	J	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Uranium	5.60		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Vanadium	26.1	J	ug/L	20.0	10	12/10/2013	SV	1312035

TDF #: A-025

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: DR-1	Date / Time Sampled: 11/13/13 15:47	Workorder: C131107
EPA Tag No.: 8-B	Matrix: Surface Water	Lab Number: C131107-05 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	227		ug/L	20.0	1	12/10/2013	SV	1312035
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/10/2013	SV	1312035
200.7	Calcium	33200		ug/L	50.0	1	12/10/2013	SV	1312035
200.7	Iron	192	J	ug/L	100	1	12/10/2013	SV	1312035
200.7	Magnesium	5480		ug/L	100	1	12/10/2013	SV	1312035
200.7	Manganese	15.3		ug/L	2.00	1	12/10/2013	SV	1312035
200.7	Potassium	640	J	ug/L	250	1	12/10/2013	SV	1312035
200.7	Sodium	2410		ug/L	250	1	12/10/2013	SV	1312035
200.7	Zinc	< 20.0	U	ug/L	10.0	1	12/10/2013	SV	1312035
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Barium	64.4		ug/L	25.0	5	12/10/2013	SV	1312035
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/10/2013	SV	1312035
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Lead	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Molybdenum	1.59	J	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Selenium	< 10.0	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Thallium	2.82	J	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Thorium	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/10/2013	SV	1312035

TDF #: A-025

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: DR-2	Date / Time Sampled: 11/13/13 14:35	Workorder: C131107
EPA Tag No.: 8-B	Matrix: Surface Water	Lab Number: C131107-08 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	186		ug/L	20.0	1	12/10/2013	SV	1312035
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/10/2013	SV	1312035
200.7	Calcium	38700		ug/L	50.0	1	12/10/2013	SV	1312035
200.7	Iron	178	J	ug/L	100	1	12/10/2013	SV	1312035
200.7	Magnesium	5980		ug/L	100	1	12/10/2013	SV	1312035
200.7	Manganese	63.3		ug/L	2.00	1	12/10/2013	SV	1312035
200.7	Potassium	765	J	ug/L	250	1	12/10/2013	SV	1312035
200.7	Sodium	2690		ug/L	250	1	12/10/2013	SV	1312035
200.7	Zinc	< 20.0	U	ug/L	10.0	1	12/10/2013	SV	1312035
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Barium	65.9		ug/L	25.0	5	12/10/2013	SV	1312035
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/10/2013	SV	1312035
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Lead	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Molybdenum	2.59	J	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Selenium	< 10.0	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Thallium	5.90		ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Thorium	< 5.00	U	ug/L	2.50	5	12/10/2013	SV	1312035
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/10/2013	SV	1312035
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/10/2013	SV	1312035

Project Name: Rico-Argentine_Waters_NOV 2013_A-025

Certificate of Analysis

TDF #: A-025

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: DR-3
EPA Tag No.: 8-BDate / Time Sampled: 11/13/13 10:16
Matrix: Surface WaterWorkorder: C131107
Lab Number: C131107-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	558	.	ug/L	200	10	12/10/2013	SV	1312035
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	12/10/2013	SV	1312035
200.7	Calcium	228000		ug/L	500	10	12/10/2013	SV	1312035
200.7	Iron	2510		ug/L	1000	10	12/10/2013	SV	1312035
200.7	Magnesium	20100		ug/L	1000	10	12/10/2013	SV	1312035
200.7	Manganese	2020		ug/L	20.0	10	12/10/2013	SV	1312035
200.7	Potassium	3420	J	ug/L	2500	10	12/10/2013	SV	1312035
200.7	Sodium	11700		ug/L	2500	10	12/10/2013	SV	1312035
200.7	Zinc	4980		ug/L	100	10	12/10/2013	SV	1312035
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Barium	< 100	U	ug/L	50.0	10	12/10/2013	SV	1312035
200.8	Cadmium	27.1		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/10/2013	SV	1312035
200.8	Cobalt	2.73		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Copper	49.4		ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Lead	2.41		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Molybdenum	13.6		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Selenium	< 20.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Thallium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Thorium	< 10.0	U	ug/L	5.00	10	12/10/2013	SV	1312035
200.8	Uranium	4.21		ug/L	1.00	10	12/10/2013	SV	1312035
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/10/2013	SV	1312035